

What is claimed is:

1. An apparatus for safely supporting a barbell above a weight lifting bench comprising:

- 5 a) first and second spaced, elongated uprights positionable on opposite sides of said bench, each of said uprights including a vertically adjustable barbell support having a raised position and a lowered position, and at least one hydraulic cylinder having a first end connected to said barbell support and a second end connected to said upright;
- 10 b) an accumulator for actuating said at least one hydraulic cylinder, said accumulator having a pressure vessel casing containing a compressible medium and a hydraulic fluid, wherein said compressible medium is precharged to a desired pressure to exert a force on said hydraulic fluid, said accumulator being connected by at least one fluid line to said at least one hydraulic cylinder; and
- 15 c) an actuator for controlling the flow of fluid from said accumulator to said at least one hydraulic cylinder, whereby flow of fluid into said at least one hydraulic cylinder urges said supports toward their upright position.

2. The apparatus of claim 1, wherein each of said uprights includes a slotted outer housing, a rod longitudinally aligned within said housing, and a sleeve slidable on said rod, said barbell support being attached to said sleeve and extending outwardly from said upright through said slot, said cylinder first end being connected to said sleeve.

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3. The apparatus of claim 1, wherein said uprights are tilted rearwardly.

4. The apparatus of claim 1, further including a horizontal attachment member joining said uprights.

5. The apparatus of claim 1, further including a horizontal bench support member
5 extending between said uprights.

6. The apparatus of claim 1, wherein said actuator is positioned for access by a user's foot.

10 7. The apparatus of claim 1, wherein said uprights include barbell weight rests attached to said uprights at selected vertical positions.

8. The apparatus of claim 1, wherein said pressure vessel includes a first compartment for containing said compressible medium and a second compartment for storing
15 said hydraulic fluid, and a flexible partition between said first and second compartments.

9. The apparatus of claim 1, wherein said at least one fluid line further includes a flow disperser to restrict the rate at which hydraulic fluid flows into said at least one hydraulic cylinder.

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10. The apparatus of claim 1, wherein said accumulator further includes a turbulence-reducing medium to prevent the sloshing of said hydraulic fluid inside said accumulator whenever said hydraulic fluid is in motion.

11. An apparatus for safely supporting a barbell during weight lifting comprising:

a) a weight bench having a head end and a lower end;

b) first and second spaced, elongated uprights positioned on opposite sides of said bench head end, each of said uprights including a vertically adjustable barbell support having a raised position and a lowered position extending toward said bench lower end, and a hydraulic cylinder having a first end connected to said barbell support and a second end connected to said upright;

c) an accumulator for actuating said at least one hydraulic cylinder, said accumulator having a pressure vessel casing containing a compressible medium and a hydraulic fluid, wherein said compressible medium is precharged to a desired pressure to exert a force on said hydraulic fluid, said accumulator being connected by at least one fluid line to said at least one hydraulic cylinder;

d) a pump connected to said accumulator by a compressible medium conduit to pump said compressible medium into said accumulator; and

e) an actuator for controlling the flow of fluid from said accumulator to said at least one hydraulic cylinder, whereby flow of fluid into said at least one cylinder urges said supports toward their upright position, said actuator including a valve in said fluid line.

12. The apparatus of claim 11, further including a vertically adjustable bench support extending between said uprights, the head end of said bench being supported on said bench support.

13. The apparatus of claim 11, wherein each of said uprights includes a slotted outer housing, a rod longitudinally aligned within said housing, and a sleeve slidable on said rod, said barbell support being attached to said sleeve and extending outwardly from said upright through said slot, said cylinder first end being connected to said sleeve.

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14. The apparatus of claim 11, wherein said uprights are tilted rearwardly.

15. The apparatus of claim 11, further including a horizontal attachment member joining said uprights.

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16. The apparatus of claim 11, further including a manual pressure release valve in communication with said compressible medium to decrease the lifting force said urging said supports towards their upright positions.

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17. The apparatus of claim 11, further including a safety pressure release valve in communication with said compressible medium to release accumulated inside said pressure vessel casing whenever the casing's maximum safe operating pressure is being approached.

18. The apparatus of claim 11, further including a pressure indication gauge for
20 instantaneously indicating the amount of lift force that can be transmitted to said supports.

19. An apparatus for safely supporting a barbell during weight lifting comprising:
a) a tiltable weight bench for supporting a users head and torso, said bench
having a head end and a lower end;

b) first and second spaced, elongated uprights positioned on opposite sides of said bench head end, each of said uprights including a slotted outer housing, a rod longitudinally aligned within said housing, a sleeve slidable on said rod between a raised position and a lowered position, and a horizontal barbell support attached to said sleeve and
5 extending outwardly from said housing through said slot;

c) first and second hydraulic cylinders, each cylinder have a first end connected to one of said barbell supports and a second end connected to said upright housing;

d) an accumulator for actuating said first and second hydraulic cylinders, said accumulator having a pressure vessel casing containing air and a hydraulic fluid, wherein the
10 air is precharged to a desired pressure to exert a force on the hydraulic fluid, said accumulator being connected by fluid lines to said first and second hydraulic cylinders;

e) a foot-operated pump connected to said accumulator by an air line to pump air into said accumulator; and

f) an actuator for controlling the flow of fluid from said accumulator to said
15 hydraulic cylinders, whereby flow of fluid into said cylinders urges said supports toward their upright position, said actuator including a valve in said fluid line and a valve controller operable by said user when said user is positioned on said bench.

20. The apparatus of claim 19, further including a vertically adjustable, horizontal
20 bench support extending between said uprights, the head end of said bench being supported on said bench support.